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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,572

09/27/2006

Tamotsu Yamamoto

2006\_1635A

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7590

10/06/2011

WENDEROTH, LIND & PONACK, L.L.P.

1030 15th Street, N.W.,

Suite 400 East

Washington, DC 20005-1503

EXAMINER

YABUT, DANIEL D

ART UNIT

PAPER NUMBER

3656

NOTIFICATION DATE

DELIVERY MODE

10/06/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ddalecki@wenderoth.com

coa@wenderoth.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/594,572	YAMAMOTO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	DANIEL YABUT	3656	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1,4,11 and 15-19 is/are pending in the application.
- 5a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1, 4, 11, 15, 18 and 19 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/21/2011 has been entered.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 11, 18 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (Japanese Patent JP2003184994A) in view of Takeda (US Patent 4,968,292).

Yamamoto discloses a rotating assembly (Fig. 1) comprising a(n):

Re claim 1

- Shaft (10) having an insertion portion (near 11; Fig. 4) and an outer circumferential surface (at 10; Fig. 4)
- Rotating member having an inner hole (at numeral 23 in Fig. 5A), said rotating member being fixed to said shaft by inserting said shaft into said inner hole in an insertion direction ([0017])

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- Diameter of said inner hole is smaller than an outer diameter of said insertion portion of said shaft (§[0015] ll. 1-6), and a plurality of grooves (24) extending in the insertion direction are disposed on one of said inner hole and said outer circumferential surface of said shaft
- After the diameter of said inner hole is expanded by heating said rotating member, said shaft is inserted into said inner hole and said rotating member is cooled to reduce the diameter of said inner hole, said one of said inner hole and said outer circumferential surface of said shaft having said plurality of grooves presses and raises the other of said inner hole and said outer circumferential surface of said shaft such that said other of said inner hole and said outer circumferential surface of said shaft enters said plurality of grooves so that said rotating member is fixed to said shaft and formed (§[0017]). Note: Regarding this limitation, the MPEP states, "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process". See MPEP 2113.
- Rotating member is a cam piece (20) having an outer circumferential surface (at 22; Fig. 4) with a portion of said outer circumferential surface of said rotating member having a cam profile (Fig. 4), said cam profile extending from a first location on said outer circumferential surface of said rotating member to a second location on said

- outer circumferential surface of said rotating member (left and right hand sides of rotating member in Fig. 3)
- First and second portions (crevices at left and right hand sides at numerals 24 in Fig. 3) in said inner hole are disposed radially inward of said first and second locations, respectively, so that said first and second portions are radially opposed to each other ([0015] ll. 6-9), and said first and second portions are configured to prevent contact with said outer circumferential surface of said shaft when the rotating member is fixed to said shaft (see gap between faces 24B and 13B in Fig. 5B)
  - First and second portions extend through an entire thickness of said rotating member (24 in Fig. 7)

Regarding claim 1, Yamamoto does not expressly disclose the first and second portions being first and second large-diameter escape portion.

Takeda teaches first and second portions being first and second large-diameter escape portions (41) for the purpose of promoting the ease of reassembly (col. 3 ll. 53-64).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the first and second portions of Yamamoto to be first and second portions being first and second large-diameter escape portions, as taught by Takeda, for the purpose of promoting the ease of reassembly.

Regarding 1 further, Yamamoto as modified above does not expressly disclose the escape portion having a circumferential length that is at least equal to a circumferential length of two adjacent grooves of said plurality of grooves.

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide the escape portion having a circumferential length that is at least equal to a circumferential length of two adjacent grooves of said plurality of grooves, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See MPEP 2144.05.

Yamamoto as modified above further discloses the following:

Re claim 11

- Shaft (10) having an insertion portion (near 11; Fig. 4), said insertion portion having an outer diameter and an outer circumferential surface (at 10; Fig. 4)
- Rotating member having an inner hole (near 24; Fig. 3), said inner hole having a diameter that is smaller than the outer diameter of said insertion portion, and said rotating member is being fixed onto said shaft by inserting said shaft into said inner hole of said rotating member in an insertion direction (¶[0015] / L1-6)
- Plurality of grooves (24) extending in the insertion direction, said plurality of grooves being positioned on said inner hole and an outer circumferential surface of the shaft
- After the diameter of said inner hole is expanded by heating said rotating member, said shaft is inserted into said inner hole, and said rotating member is cooled to reduce the diameter of said inner hole, wherein said plurality of grooves are pressed into said shaft so that of the said inner hole is fixed to said outer circumferential surface of said insertion portion and formed (¶[0017]). **Note:** See above regarding MPEP 2113.

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- Rotating member is a cam piece (20) having an outer circumferential surface with a portion of said outer circumferential surface of said rotating member having a cam profile, said cam profile extending from a first location on said outer circumferential surface of said rotating member to a second location on said outer circumferential surface of said rotating member (left and right hand sides of rotating member 20; Fig. 3)
- First and second large-diameter escape portions (crevices at left and right hand sides at numerals 24 in Fig. 3) in said inner hole are disposed radially inward of said first and second locations, respectively, so that said first and second large-diameter escape portions are radially opposed to each other (§[0015] ll. 6-9), and said first and second large diameter escape portions are configured to prevent contact with said outer circumferential surface of said shaft when the rotating member is fixed to said shaft (see gap between faces 24B and 13B in Fig. 5B)
- Each said escape portion has a circumferential length that is at least equal to a circumferential length of two adjacent grooves of said plurality of grooves (see above regarding workable ranges; MPEP 2144.05)
- First and second portions extend through an entire thickness of said rotating member (24 in Fig. 7)

Re claim 18

- Each of said plurality of grooves is formed in a trapezoidal shape (at 24a; §[0015] / L14).

Re claim 19

- Each of said plurality of grooves has one of a trapezoidal shape, a circular shape, and a triangular shape (at 24a; ¶[0015] / L14).

Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (Japanese Patent JP2003184994A) in view of Takeda (US Patent 4,968,292), as applied to claims 1, 11, 18 and 19 above, and further in view of Arnold et al. (US Patent 5,207,120).

Yamamoto as modified above discloses all of the claim limitations, see above, but does not expressly disclose the hardness of the inner hole of the cam piece being higher than the hardness of the outer circumferential surface of the driving shaft.

Arnold et al. teaches the use of the hardness of the inner hole of the cam piece being higher than the hardness of the outer circumferential surface of the driving shaft (C4 / L49-55) for the purpose of assuring that the insertion portion conforms with the inner hole upon installation (C4 / L52-53).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide the hardness of the inner hole of the cam piece being higher than the hardness of the outer circumferential surface of the driving shaft, as taught by Arnold et al., in the device of Yamamoto as modified above for the purpose of assuring that the insertion portion conforms with the inner hole upon installation.

### **Response to Arguments**

Applicant's arguments filed 4/21/2011 have been fully considered but they are not persuasive.



Applicant argues that Takeda does not teach escape portions 41 being disposed radially inward of first and second locations, so that the first and second large-diameter escape portions are radially opposed to each other. In response, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As described above, Yamamoto indeed teaches first and second portions (crevices at left and right hand sides of rotating member 20 at numerals 24 in Fig. 3) disposed radially inward of the first and second locations, so that the first and second portions are radially opposed to each other. Takeda teaches the modification of said first and second portions to be first and second large-diameter escape portions for the added benefit of ease of reassembly. As such, the instant art combination indeed teaches the aforementioned claim limitation.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL YABUT whose telephone number is (571)270-5526. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:00 P.M. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard W. Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DANIEL YABUT/  
Examiner, Art Unit 3656  
9/28/2011

/Justin Krause/

Primary Examiner, Art Unit 3656